

## Abstract

The aim of this research is to forecast the overall and country-wise remittances of Pakistan. Remittances are an essential part of any developing country's economy. One of the major sources of foreign currency reserves in Pakistan is remittance. In this thesis, we forecasted the trend of Pakistan's remittances till December 2021 by using different data sets. We used several time series analysis methods to forecast the remittance of Pakistan spanning the months of April 2021 to December 2021. We initially utilized Box-Jenkin's technique, which consists of different model selection criteria. First, we looked at the stationarity of the data. We have used both graphical and unit root tests along with the correlogram tests to assess stationarity. Then ACF and PACF curves were utilized to identify the best fitted model for remittance. The results indicate that 2 out of six series are not suitable for ARIMA, so we eliminated those series. Using ARIMA (15, 1, 1) for the 1<sup>st</sup> series, ARIMA (1,1,1) for the 2<sup>nd</sup> series, ARIMA (1,1,9) for the 3<sup>rd</sup> series and ARIMA (8,1,1) for the 4<sup>th</sup> series, we analyzed whether this is the best model for forecasting or whether we need to move towards the next technique. For this purpose, we first evaluated the residual plots by using standardized plots, Box-Ljung plots, and ACF plots. We checked the accuracy of the model. Secondly, the ARCH-LM and ACF tests are utilized to detect heteroscedasticity in data. The results indicate that only the 1<sup>st</sup> series contains heteroscedasticity. Hence, we were able to estimate the expected incoming remittance in Pakistan for all other series by using ARIMA methodology. To forecast the remittances from the 1<sup>st</sup> series, we move toward the ARCH family due to volatility in data. By observing the PACF squared residual plots, ARCH (1,1) is found to be the best fitted model for forecasting. EViews (10) and R statistical software is utilized for all kind of analysis. The results of the forecasting through ARIMA modeling indicate that 2658.261 million US dollar remittances will be received by Pakistan in December 2021. In the overall remittances, 602.895 million US dollars in remittances will be received from Saudi Arabia and the UAE will contribute 567.918 million US dollars to the remittances of Pakistan by the end of this year. According to the forecasting of the 1<sup>st</sup> series through ARCH technique, Pakistan will receive an overall of 2766.692 million dollars by the end of this year. The results indicate that there will be an increase in the overall and country wise remittances of Pakistan. Remittances are believed to be related to bilateral migration stocks and income levels of the country where they are xiii

sent, as well as the country from where they originate. Risks associated with changes in the price of remittances, variations in the route of remittance transmission, fluctuating currency rates and unexpected immigration policies in the receiving country may altered forecast outcomes. We observed that the remittance flow, which is already growing, is expected to rise much further in the coming months.